

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (previously presented) A multi-speed ratio apparatus to control output comprising:

- a rotary speed converter having at least three rotatable components being operably connected together;
- a first component of said at least three rotatable components being an input part to said rotary speed converter, wherein said input part is operably connected to a driving member and said driving member comprises a vehicular transmission;
- a second component of said at least three rotatable components being an output part of said rotary speed converter, wherein said output part is operably connected to a drivable member;
- a third component of said at least three rotatable components being interposed within said first component and said second component to form a nested configuration of said at least three

rotatable components;

a grounding member being operably connected to a
groundable component for selectively grounding
said groundable component, wherein said
groundable component is at least one of said at
least three rotatable components; and
said at least three rotatable components comprise an
inner cam, a reaction disk, and an outer cam.

2. (previously presented) The apparatus as defined in claim
1, further comprising a housing.

3. (previously presented) The apparatus as defined in claim
2, wherein said groundable component of said at least one
of said at least three rotatable components is grounded to
said housing.

4. (canceled)

5. (previously presented) The apparatus as defined in claim
1, further comprising:

a plurality of slots in said reaction disk; and
a contact member selectively disposed within at least

one of said plurality of slots.

6. (previously presented) The apparatus as defined in claim 5, wherein said contact member comprises a roller.

7. (previously presented) The apparatus as defined in claim 5, wherein said contact member comprises a bearing.

8. (previously presented) The apparatus as defined in claim 5, wherein said contact member comprises a roller device.

9. (previously presented) The apparatus as defined in claim 1, wherein:

said input part is said inner cam;

said output part is said reaction disk; and

said groundable component of said at least one of said at least three rotatable components is said outer cam.

10. (previously presented) The apparatus as defined in claim 1, wherein:

said input part is said reaction disk;

said output part is said inner cam; and

said groundable component of said at least one of said

at least three rotatable components is said outer cam.

11. (previously presented) The apparatus as defined in claim 1, wherein:

said input part is said outer cam;

said output part is said inner cam; and

said groundable component of said at least one of said at least three rotatable components is said reaction disk.

12. (previously presented) The apparatus as defined in claim 1, wherein:

said input part is said inner cam;

said output part is said outer cam; and

said groundable component of said at least one of said at least three rotatable components is said reaction disk.

13. (previously presented) The apparatus as defined in claim 1, wherein:

said input part is said reaction disk;

said output part is said outer cam; and

said groundable component of said at least one of said at least three rotatable components is said inner cam.

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14. (previously presented) The apparatus as defined in claim 1, wherein:

said input part is said outer cam;

said output part is said reaction disk; and

said groundable component of said at least one of said at least three rotatable components is said inner cam.

15-24. (canceled)

25. (previously presented) The apparatus as defined in claim 9, wherein

said inner cam and said outer cam form a conjugate pair.

26. (previously presented) The apparatus as defined in claim 10, wherein

said inner cam and said outer cam form a conjugate pair.

27. (previously presented) The apparatus as defined in claim 11, wherein

said inner cam and said outer cam form a conjugate pair.

28. (previously presented) The apparatus as defined in claim 12, wherein

said inner cam and said outer cam form a conjugate pair.

29. (previously presented) The apparatus as defined in claim 13, wherein

said inner cam and said outer cam form a conjugate pair.

30. (previously presented) The apparatus as defined in claim 14, wherein

said inner cam and said outer cam form a conjugate pair.

31. (canceled)

32. (previously presented) A multi-speed ratio apparatus to control output comprising:

a rotary speed converter having at least three
rotatable components being operably connected
together;

a first component of said at least three rotatable components being an input part to said rotary speed converter, wherein said input part is operably connected to a driving member and said driving member comprises an engine;

a second component of said at least three rotatable components being an output part of said rotary speed converter, wherein said output part is operably connected to a drivable member;

a third component of said at least three rotatable components being interposed within said first component and said second component to form a nested configuration of said at least three rotatable components;

a grounding member being operably connected to a groundable component for selectively grounding said groundable component, wherein said groundable component is at least one of said at least three rotatable components; and

said at least three rotatable components comprise an inner cam,

a reaction disk, and an outer cam.

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33-34. (canceled)

35. (previously presented) A multi-speed ratio apparatus to control output comprising:

- a rotary speed converter having at least three rotatable components being operably connected together;
- a first component of said at least three rotatable components being an input part to said rotary speed converter, wherein said input part is operably connected to a driving member and said driving member comprises another rotary speed converter;
- a second component of said at least three rotatable components being an output part of said rotary speed converter, wherein said output part is operably connected to a drivable member;
- a third component of said at least three rotatable components being interposed within said first component and said second component to form a nested configuration of said at least three rotatable components;
- a grounding member being operably connected to a

groundable component for selectively grounding
said groundable component, wherein said
groundable component is at least one of said at
least three rotatable components; and
said at least three rotatable components comprise an
inner cam,
a reaction disk, and an outer cam.

36. (previously presented) The apparatus as defined in
claim 1, wherein said drivable member is a vehicular axle.

37. (previously presented) The apparatus as defined in
claim 1, wherein said drivable member is another rotary
speed converter.

38. (previously presented) The apparatus as defined in
claim 1, wherein said drivable member comprises a vehicular
differential.

39. (previously presented) The apparatus as defined in
claim 38, further comprising a housing, wherein said
differential is contained in said housing.

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40. (previously presented) The apparatus as defined in claim 1, wherein said apparatus is back drivable.

41 - 43. (canceled)

44. (previously presented) The apparatus as defined in claim 1, wherein said grounding member comprises a brake element.

45. (previously presented) The apparatus as defined in claim 1, wherein said grounding member comprises a clutch.

46. (previously presented) A speed converter for producing rotary motion of a shaft, comprising:

a housing;

a single stage rotary speed converter having a

conjugate pair of cam parts and a reaction disk operably interconnected between said conjugate pair of cam parts, wherein said reaction disk is interposed within said conjugate pair of cam parts to form a nested configuration and said single stage rotary speed converter is contained within said housing;

a first part of said conjugate pair of cam parts
comprising an inner cam and an input shaft, said
inner cam being drivable by a driving member
capable of producing a predetermined input rotary
speed, wherein said driving member is a vehicular
transmission;

a second part of said conjugate pair of cam parts
comprising an outer cam;

said reaction disk including a plurality of slots and
an output shaft, said reaction disk being capable
of operably coupling said conjugate pair of cam
parts, wherein said output shaft is capable of a
predetermined output rotary speed and capable of
driving a drivable member;

a contact member selectively disposed within at least
one of said plurality of slots; and

a grounding member operably connected to said outer
cam and capable of selectively grounding said
outer cam to said housing.

47. (previously presented) A speed converter for producing
rotary motion of a shaft, comprising:

a housing;

a single stage rotary speed converter having a
conjugate pair of cam parts and a reaction disk
operably interconnected between said conjugate
pair of cam parts, wherein said reaction disk is
interposed within said conjugate pair of cam
parts to form a nested configuration and said
single stage rotary speed converter being
contained within said housing;

a first part of said conjugate pair of cam parts
comprising an inner cam and an output shaft, said
output shaft capable of having a predetermined
output rotary speed and further being capable of
driving a drivable member;

a second part of said conjugate pair of cam parts
being an outer cam;

said reaction disk including a plurality of slots and
an input shaft, said reaction disk being capable
of operably coupling said conjugate pair of cam
parts, wherein said reaction disk is drivable by
a driving member capable of producing a
predetermined input rotary speed, wherein said
driving member is a vehicular transmission;

a contact member selectively disposed within at least

one of said plurality of slots; and
a grounding member operably connected to said outer
cam and capable of selectively grounding said
outer cam to said housing.

48. (canceled)

49. (previously presented) A multi-ratio speed converter
capable of being operably connected to a vehicular
transmission, said multi-ratio speed converter comprising:

at least one single stage speed converter having an
input cam, an output cam, a reaction disk, a
contact member, and a grounding member operably
connected to said output cam capable of
selectively grounding said output cam,
wherein said input cam, said output cam, said reaction
disk, and said contact member are all located on
a common axis and are operably interconnected to
each other;

said at least one single stage speed converter is
disposed between said vehicular transmission and
a vehicular axle;

said input cam and said output cam form a conjugate

pair and said reaction disk is interposed within
said conjugate pair to form a nested
configuration;
said reaction disk has a plurality of slots, each of
said slots being capable of entraining said
contact member therein;
said input cam is operably connected to the vehicular
transmission; and
said reaction disk is operably connected to the
vehicular axle; and
whereby a rotational speed applied to said at least
one single stage speed converter by the
transmission is capable of being converted to
another rotational speed.

50. (previously presented) The converter as defined in
claim 49, wherein said at least one single stage converter
is capable of being set to a predetermined speed ratio.

51. (previously presented) The converter as defined in
claim 49, further comprising a plurality of single stage
speed converters, wherein each said single stage speed
converter is operably connected to another single stage

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speed converter and disposed between the transmission and the axle.

52-56. (canceled)

57. (previously presented) The apparatus as defined in claim 1, wherein said drivable member comprises a transfer case.

58. (previously presented) The apparatus as defined in claim 1, wherein said vehicular transmission is part of an all-wheel drive vehicle.

59. (previously presented) The apparatus of claim 9, wherein when said input part and said output part rotate clockwise, the speed ratio is 2.8 to 1.

60. (previously presented) The apparatus of claim 10, wherein when said input part and said output part rotate clockwise, the speed ratio is 0.36 to 1.

61. (previously presented) The apparatus of claim 11, wherein when said input part rotates clockwise and said

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output part rotates counterclockwise, the speed ratio is 0.56 to 1.

62. (previously presented) The apparatus of claim 12, wherein when said input part rotates clockwise and said output part rotates counterclockwise, the speed ratio is 1.8 to 1.

63. (previously presented) The apparatus of claim 13, wherein when said input part and said output part rotate clockwise, the speed ratio is 0.64 to 1.

64. (previously presented) The apparatus of claim 14, wherein when said input part and said output part rotate clockwise, the speed ratio is 1.56 to 1.